

REMARKS

Applicants acknowledge the First Action of 12 SEP. 2008 and request reconsideration of the claims, as amended. Main claim 1 has been amended to incorporate the features of former dependent claim 45, namely that resilient latching member 60 and closure arrangement 62 are integrally formed with each other.

INDEFINITENESS REJECTION

Claim 1 was said to be indefinite because the phrase "which external rotor . . ." was unclear. The phrase has now been amended, essentially as the examiner suggested, so the wording is now clear.

ANTICIPATION REJECTION

HORNG (USP 6,498,412) was said to anticipate the subject-matter of claims 1, 12, 15, 16, and 18. HORNG discloses, in FIGS. 1-3, some C-clips 98 which are pressed onto a shaft 96. Col. 1, lines 40-45, state that it is a disadvantage of the conventional structure that during disassembly of a motor, e.g. for inspection or correction of minor defects, the conventional C-clips end up being damaged to the point of non-usability. Instead, HORNG teaches to use engaging members 4, as shown in FIG. 3.

FIGS. 3-11 illustrate an embodiment with rings 4 of the kind shown in FIGS. 4-6. These solutions, however, are rather complicated and consist of many parts: a plug 14 (col. 2, line 53), a springy engaging member 4, and a fixing ring 5. Ring 5 is necessary because otherwise one could not disassemble the motor (see FIG. 10).

By contrast, present main claim 1 recites a "resilient radially movable latching member" which "secures the rotor shaft against being pulled out of the bearing arrangement." It is apparent from review of HORNG FIG. 10 that his shaft 31 is not at all "secured against being pulled out." Rather, the HORNG disclosure teaches away from the present invention, as recited in claim 1. Thus, the subject-matter of claim 1 is novel and unobvious. Dependent claims 2-28 incorporate this subject-matter by reference, and are therefore also allowable.

OBVIOUSNESS REJECTION

Claims 2, 3 and 28 were rejected as obvious over a combination of HORNG USP 6,498,412 with FUJINAKA USP 6,832,853 and JOACHIMI Pub. US-2003-130 381-A (now USP 6,916,866).

FUJINAKA discloses various kinds of structures for slide bearings. FIGS. 1-5 relate to an embodiment in which a stop 6 is secured to shaft 4. The assembly becomes difficult because stop 6 must be secured inside bearing tube 2 where there is little available space. This creates an increased risk that, during assembly, shaft 4 could be bent or completely destroyed. The rotor shaft of a miniature motor is often thinner than a knitting needle. A bent rotor shaft makes a motor worthless. For example, it is customary, when transporting motors, to separate the stator from the rotor, in order to avoid damage, during transit, to the rotor shaft. The customer must then re-assemble the motor after delivery. The structure according to FUJINAKA would clearly make that impossible.

In the structure according to FIGS. 1-5, the axial bearing or thrust plate 7 is held in a cap 9, placed into bearing boss 2 (col. 3, lines 12-24). Then, the lower end 18 (FIG. 30 of bearing tube 2 is bent over, in order to secure cap 9 in tube 2 (col. 4, lines 27-36). Thereby, cap 9 is secured in place, but cannot be sealed off (see col. 4, line 33). No welded join is made, so FUJINAKA fails to provide any suggestion of the subject-matter of dependent claim 2. Instead, it teaches away from the present invention.

JOACHIMI+/BAYER AG (USP 6,916,866) is directed to a thermoplastic material for injection-molding. This thermoplastic material includes a compound which can be heated up by a laser welding device; see paragraphs 0017, and paragraphs 0017, 0028 and 0031.

JOACHIMI contains no suggestion of the subject-matter of claim 2 in combination with claim 1. FIG. 2 of FUJINAKE shows clearly that, in this field, heat deformation of sleeve 2 was known, and that it would not be helpful to use a material according to JOACHIMI in the structure of FUJINAKA. Thus, the subject-matter of claim 2 patentably distinguishes over the proposed combination of HORNG, FUJINAKA and JOACHIMI.

According to FUJINAKA FIGS. 8-9, a metal disk 23 is used as a carrier for the axial bearing 7, and this is accomplished using an adhesive 27, so that this solution has nothing to do with the present invention.

FIG. 11 of FUJINAKA teaches a cap 28 of sintered metal which, as in FIG. 2, is secured by heat deformation of the bearing tube 2. This fails to suggest or make obvious the presently claimed invention.

Paragraph 22 of the Office Action rejects claims 4-5, 7-9, 17 19, 29 and 35-41, based on two additional documents, namely OOTSUKA (USP 5,264,7460 and HORNG (USP 6,819,021). Although this teaches to make a welded join between bearing tube 8a and part 16, the bearing 17 and 18 remain open and unprotected, so that these references provide no suggestion of the present invention, in which the closure arrangement is closed in a fluid-tight manner. OOTSUKA fails to suggest or make obvious the present invention.

HORNG '021 in FIGS. 10-12 teaches a motor in which the bearing tube 116 is placed in the flange 110 (Col. 4, lines 40ff). The shaft is held by a disk 15' but is not protected against pull-out of the rotor shaft.

Paragraph 38 of the Action relies upon a 6-way combination of references, including SCHAFROTH. This disclosure relates to a watch with a microgenerator. This microgenerator uses 12 permanent magnets and these induce voltages which, within a few months, destroy the watch. Paragraph 53 explicitly warns against epilam-coating, so this reference teaches in a completely wrong direction. Such microgenerators, in any case, have no pertinence to the present claims.

CONCLUSION

The references cited disclose bits, pieces, and individual features of the present invention, but fail to teach or suggest the structure of main claim 1, as amended, or of its dependent claims. Therefore, reconsideration of the art rejections, and passage of the application to allowance are solicited. If there are any remaining issues, or if the Examiner wishes to make any suggestions to place the application in condition for allowance, kindly call Applicants' counsel, for prompt resolution thereof.

Respectfully submitted,

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